

Attachment A

USEPA - NEW ENGLAND
REGIONAL ENVIRONMENTAL ANALYTICAL PROCUREMENT

STATEMENT OF WORK
FOR
ORGANICS ANALYSIS

Multi-Media, Multi-Concentration

Document Number OREAP-01.0

OCTOBER 1998

STATEMENT OF WORK

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SUMMARY OF REQUIREMENTS

Exhibit A - Summary of Requirements

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1.0 PURPOSE

The purpose of the Region I Organic Regional Environmental Analytical Procurement (OREAP) is to provide analytical data for use by Region I U.S. Environmental Protection Agency (EPA) in support of its investigation and clean-up activities under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA). Other EPA Program Offices who have similar analytical data needs also use this service.

2.0 DESCRIPTION OF SERVICE

OREAP provides for two components of analytical services within the framework of the contract. The organic analytical service component provides a contractual framework for laboratories to apply EPA OREAP methods, which have been provided, for the isolation, detection and quantitative measurement of volatiles, semivolatiles, pesticide/PCBs, PCBs only, and water soluble organics in water, soil/sediment/solid and/or oily sludge environmental samples. The analytical service provides the methods to be used, and the specific contractual requirements by which EPA will evaluate the data. This analytical service uses gas chromatography/mass spectrometry (GC/MS), gas chromatography/electron capture detector (GC/ECD), gas chromatography nitrogen/phosphorous detector (GC/NPD) and gas chromatography/flame ionization detector (GC/FID) methods to analyze the target compounds. The target compound list may be designated as all target compounds listed in Exhibit C, or a subset of those compounds, and will be indicated on the chain of custody accompanying each Sample Delivery Group (SDG).

The second component of the contract is Labor Hour Pool (LHP). This component provides the Contractor and the Agency with a means of addressing problematic field samples within the contractual framework of the analytical service requirements.

3.0 DATA USES

This analytical service provides data which EPA uses for a variety of purposes, such as determining the nature and extent of contamination at a hazardous waste site, assessing priorities for response based on risks to human health and the environment, determining appropriate cleanup actions, and determining when remedial actions are complete. The data may be used in all stages in the investigation of a hazardous waste site including site inspections, Hazard Ranking System scoring, remedial investigations/feasibility studies, remedial design, treatability studies, and removal actions. In addition, this service provides data that are available for use in Superfund enforcement/litigation activities.

4.0 SUMMARY OF REQUIREMENTS

- 4.1 Introduction to the SOW. This statement of work (SOW) is designed as part of the documentation for a contract between Region I EPA and a commercial laboratory performing analyses in support of EPA Superfund programs. The SOW comprises eight exhibits. Exhibit A provides an overview of the SOW and its general requirements. Exhibit B contains a description of the reporting and deliverables requirements, in addition to the data reporting forms and the forms instructions. Exhibit C specifies the target compound list for this SOW with the contract-required quantitation limits (CRQLs) for all sample matrices. Exhibit D details the specific analytical procedures to be used with this SOW and resulting contracts. Exhibit E provides descriptions of required quality assurance/quality control (QA/QC), standard operating procedures (SOPs), and procedures used for evaluating analytical methodologies, QA/QC performance, and the reporting of data. Exhibit F contains chain-of-custody and sample documentation requirements which the Contractor shall follow. To ensure proper understanding of the terms utilized in this SOW, a glossary can be found in Exhibit G. (When a term is used in the text without explanation, the glossary meaning shall be applicable.)
- 4.2 Overview of Major Task Areas. For each sample, the Contractor shall perform the tasks described in this section. Specific requirements for

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each task are detailed in the exhibits as referenced.

4.2.1 Task I: Chain-of-Custody

- 4.2.1.1 Chain-of-Custody. The Contractor shall receive and maintain samples under proper chain-of-custody procedures. All associated document control and inventory procedures shall be developed and followed. Documentation, as described therein, shall be required to show that all procedures are being strictly followed. This documentation shall be reported as the Complete Sample Delivery Group File (CSF) (see Exhibit B). The Contractor shall establish and use appropriate procedures to handle confidential information received from the Agency. See Exhibit F for specific requirements.
- 4.2.1.2 Sample Scheduling/Shipments. Sample shipments to the Contractor's facility will be scheduled and coordinated by the Region I Sample Control Center (RSCC). The Contractor shall communicate with the RSCC personnel by telephone, as necessary throughout the process of sample scheduling, shipment, analysis and data reporting, to ensure that samples are properly processed.
- 4.2.1.2.1 Samples will be shipped routinely to the Contractor through an overnight delivery service. However, as necessary, the Contractor shall be responsible for any handling or processing required for the receipt of sample shipments, including pick-up of samples at the nearest servicing airport, bus station or other carrier service within the Contractor's geographical area. The Contractor shall be available to receive sample shipments at any time the delivery service is operating, including Saturdays and Sundays.
- 4.2.1.2.2 If there are problems with the samples (e.g., mixed media, containers broken or leaking) or sample documentation/paperwork (e.g., Traffic Reports not with shipment, sample and Traffic Report numbers do not correspond), the Contractor shall immediately contact the RSCC for resolution. The Contractor shall immediately notify the RSCC regarding any problems and laboratory conditions that affect the timeliness of analyses and data reporting. In particular, the Contractor shall notify the RSCC personnel in advance regarding sample data that will be delivered late and shall specify the estimated delivery date.
- 4.2.1.2.3 To effectively monitor the temperature of the sample shipping cooler, a sample shipping cooler temperature blank will be included with each cooler shipped. The temperature blank will be clearly labeled: USEPA COOLER TEMPERATURE INDICATOR.
- 4.2.1.2.3.1 The Contractor shall use the USEPA supplied cooler temperature indicator bottle to determine the cooler temperature. The temperature of the cooler shall be measured at the time of sample receipt by the Contractor.
- 4.2.1.2.3.2 The temperature of the sample shipping cooler shall be measured and recorded immediately upon opening the cooler, and prior to unpacking the samples or removing the packing material. The cooler temperature indicator bottle will be located in the right hand corner, next to the hinge.
- 4.2.1.2.3.3 To determine the temperature of the cooler, the contractor shall locate the cooler temperature indicator bottle in the sample shipping cooler, remove the cap and insert a calibrated thermometer into the cooler temperature indicator bottle. Prior to recording the temperature, the Contractor shall allow a minimum of 3 minutes, but not greater than 5 minutes for the thermometer to equilibrate with the liquid in the bottle. At a minimum, the calibrated thermometer ($\pm 1^{\circ}\text{C}$) shall have a measurable range of 0 to 50 degrees Celsius. Other devices which can measure temperature may be used if they can be calibrated to $\pm 1^{\circ}\text{C}$ and have a range of 0 to 20°C .
- 4.2.1.2.3.4 If the temperature of the sample shipping cooler's

temperature indicator exceeds 10 degrees Celsius, the contractor shall contact the Region I Sample Control Center (RSCC) and report the cooler temperature. The RSCC will contact the contractor who shipped the samples for instructions on how to proceed. The Region will either require that no sample analysis(es) be performed or that the Contractor proceed with the analysis(es). The RSCC will in turn notify the laboratory of the Region's decision. The laboratory shall document the Region's decision in the SDG narrative. Also in the SDG narrative, the laboratory shall list by fraction, the USEPA sample number, all samples which were shipped in a cooler which exceeded 10 degrees Celsius.

- 4.2.1.2.3.5 The Contractor shall record the temperature of the cooler on the DC-1 Form, under Item 3 - Cooler Temperature, and in the SDG narrative.
- 4.2.1.2.4 The Contractor shall accept all samples scheduled by the Region, with the intent that all samples will be analyzed within the required holding times and data delivered to the Region within the contractually designated time frame. Should the Contractor elect to accept additional samples, the Contractor shall remain bound by all contract requirements for analysis of those samples accepted.
- 4.2.1.2.5 The Contractor shall be required to routinely return sample shipping containers (e.g., coolers) to the appropriate sampling office within fourteen (14) calendar days following shipping receipt. The Contractor will be provided a shipping mechanism by the originating sampler or EPA (e.g., field samplers).
- 4.2.1.2.5.1 The Contractor shall ensure that the account numbers provided are used only for the return of Government owned shipping containers (e.g., coolers). Laboratories shall remove packing and other materials from the coolers before each pickup and shall ensure that the coolers are clean. The Contractor shall determine from visual inspection whether the cooler is clean. An authorized laboratory official shall sign and telefax the pickup record(s) to the designated transportation contractor or sampler within two (2) calendar days of cooler pick-up for return.
- 4.2.2 Task II: Analysis of Samples
- 4.2.2.1 Overview. Sample analyses will be scheduled by groups of samples, each defined as a Case and identified by a unique EPA Case number assigned by the RSCC. A Case signifies a group of samples collected at one site or geographical area over a finite time period, and will include one or more field samples with associated blanks and QC samples. Samples may be shipped to the Contractor in a single shipment or multiple shipments over a period of time, depending on the size of the Case.
- 4.2.2.1.1 A Case consists of one or more Sample Delivery Group(s). A Sample Delivery Group (SDG) is defined by the following, whichever is most frequent:
- Each Case of field samples received, OR
 - Each 20 field samples within a Case, OR
 - Each 14 calendar day period (7 calendar day period for 14-day data turnaround contracts) during which field samples in a Case are received (said period beginning with the receipt of the first sample in the SDG).
- 4.2.2.1.2 A Case will have Matrix Spike/Matrix Spike Duplicate (MS/MSD) samples indicated on the sampling paperwork. There will usually be one MS/MSD set per SDG. The EPA may require additional MS/MSD analyses, upon Regional request, for which the Contractor will be paid.
- 4.2.2.1.3 Samples may be assigned to SDGs by matrix (i.e., all soils in

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one SDG, all aqueous samples in another), at the discretion of the laboratory. Such assignment shall be made at the time the samples are received, and shall not be made retroactively. Note that PE samples received within a Case shall be assigned to an SDG containing field samples for that Case.

- 4.2.2.2 Preparation Techniques. Prepare samples as described in Exhibit D. For semivolatile, pesticide/Aroclor, and PCB only samples, an aliquot of sample is extracted with a solvent and concentrated. The concentrated extract is subjected to fraction-specific cleanup procedures and then analyzed by GC/MS for semivolatile or GC/ECD for the pesticide/Aroclor target compounds listed in Exhibit C. Additional cleanup procedures are included for matrices which may warrant their use to achieve the required QC criteria. For volatile samples, an aliquot of sample is purged with an inert gas, trapped on a solid sorbent, and then desorbed onto the GC/MS for analysis of the target compounds listed in Exhibit C. For water soluble organic compounds, an aliquot of sample is extracted and/or analyzed by direct aqueous injection with detection by either NPD or FID.

A Labor Hour Pool (LHP) portion is also included within the contractual framework, which may require additional preparation and/or cleanup techniques as deemed necessary to provide a means of addressing problematic field samples.

- 4.2.2.3 Analytical Techniques. The target compounds listed in Exhibit C shall be identified as described in the methodologies given in Exhibit D. Automated computer programs may be used to facilitate the identification of compounds.

- 4.2.2.3.1 The Contractor shall communicate with the Project Officer or designee by telephone, as necessary, throughout the process of sample preparation and analysis to ensure that samples are properly processed to meet all technical acceptance criteria set forth in the SOW.

- 4.2.2.4 Qualitative Verification of Compounds. The volatile and semivolatile compounds identified by GC/MS techniques shall be verified by an analyst competent in the interpretation of mass spectra by comparison of the suspect mass spectrum to the mass spectrum of a standard of the suspected compound. These procedures require the use of multiple internal standards.

- 4.2.2.4.1 If a compound initially identified by GC/MS techniques cannot be verified, but in the technical judgment of the mass spectral interpretation specialist the identification is correct, then the Contractor shall report that identification and proceed with quantitation.

- 4.2.2.4.2 The pesticide/Aroclor and other compounds analyzed by GC and identified by various detector techniques shall be verified by an analyst competent in the interpretation of gas chromatograms and by comparison of the retention times of the suspected unknowns with the retention times of respective standards of the suspected compounds. Any compound for which a concentration is reported from a GC analysis must have the identification confirmed by GC/MS if the concentration is sufficient for that purpose.

- 4.2.2.5 Quantitation of Verified Compounds. The Contractor shall quantitate components identified by GC/MS techniques by the internal standard method stipulated in Exhibit D. Where multiple internal standards are required by EPA, the Contractor shall perform quantitation utilizing the internal standards specified in Exhibit D. The Contractor shall quantitate components analyzed by GC with various detector techniques by the external standard method stipulated in Exhibit D. The Contractor shall also perform an initial three-point calibration, verify its linearity, and determine calibration factors for all standards analyzed by GC techniques as described in Exhibit D.

- 4.2.2.6 Tentative Identification of Non-Target Sample Components. For each analysis of a sample, the Contractor shall conduct mass

spectral library searches to determine tentative compound identifications as follows. For each volatile sample, the Contractor shall conduct a search to determine the possible identity of up to 10 organic compounds of greatest concentration which are not system monitoring compounds or internal standards and are not listed in Exhibit C under volatiles or semivolatiles. For each semivolatile sample, the Contractor shall conduct a search to determine the possible identification of up to 10 organic compounds of greatest concentration which are not surrogates or internal standards and are not listed in Exhibit C under volatiles or semivolatiles. In performing searches, the NIST/EPA/NIH (May 1992 release or most recent release) and/or Wiley (1991 release or most recent release), or equivalent, mass spectral library shall be used.

NOTE: Substances with responses less than 10% of the nearest internal standard are not required to be searched in this fashion.

- 4.2.2.7 Quality Assurance/Quality Control Procedures. The Contractor shall strictly adhere to all specific QA/QC procedures prescribed in Exhibits D and E. Records documenting the use of the protocol shall be maintained in accordance with the document control procedures prescribed in Exhibit F, and shall be reported in accordance with Exhibit B.
- 4.2.2.7.1 The Contractor shall maintain a Laboratory Quality Assurance Plan (LQAP) with the objective of providing sound analytical chemical measurements. This program shall incorporate the quality control procedures, any necessary corrective action, and all documentation required during data collection as well as the quality assessment measures performed by management to ensure acceptable data production.
- 4.2.2.7.2 Additional quality control shall be conducted in the form of the analysis of performance evaluation (PE) samples submitted to the laboratory by the Agency. The results of all such quality control or PE samples shall be used as the basis for an equitable adjustment to reflect the reduced value of the data to the Agency or rejection of data for: sample(s), a fraction within an SDG, or the entire SDG, and/or may be used as the basis for contract action. "Compliant performance" is defined as that which yields correct compound identification and concentration values as determined by the Agency, as well as meeting the contract requirements for analysis (Exhibit D), quality assurance/quality control (Exhibit E), data reporting and other deliverables (Exhibits B), and sample custody, sample documentation and standard operating procedure documentation (Exhibit F).
- 4.2.3 Task III: Reporting Requirements
 - 4.2.3.1 EPA has provided to the Contractor formats for the reporting of data (Exhibit B). The Contractor shall be responsible for completing and returning analysis data sheets in the format specified in this SOW and within the time specified in the Contract Performance/ Delivery Schedule in Exhibit B.
 - 4.2.3.2 Use of formats other than those designated by EPA will be deemed as noncompliant. Such data are unacceptable. Resubmission in the specified format at no additional cost to the Agency shall be required.
 - 4.2.3.3 Computer-generated forms may be submitted in the hardcopy data package(s) provided that the forms are in **exact EPA format**. This means that the order of data elements is the same as on each EPA-required form, including form numbers and titles, page numbers and header information.
 - 4.2.3.4 The data reported by the Contractor on the hardcopy data forms submitted by the Contractor shall contain accurate information. If discrepancies are found during government inspection, the Contractor shall be required to resubmit the hardcopy forms at no additional cost to the Agency.

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4.3 Technical and Management Capability

- 4.3.1 Personnel. The Contractor shall have adequate personnel at all times during the performance of the contract to ensure that EPA receives data that meet the terms and conditions of the contract.
- 4.3.2 Instrumentation. The Contractor shall have sufficient gas chromatograph/data systems (GC/FID/DS, GC/ECD/DS and/or GC/NPD/DS), gas chromatograph/mass spectrometer/data system (GC/MS/DS), including magnetic tape storage devices, and gel permeation chromatography system (GPC) capability to meet all the terms and conditions of the contract. A Labor Hour Pool (LHP) portion is also included within the contractual framework, which may require additional preparation, cleanup and/or instrumental analytical techniques as deemed necessary to provide a means of addressing problematic field samples.
- 4.3.3 Facilities. The Contractor shall maintain a facility suitable for the receipt, storage, analysis, and delivery of the product meeting the terms and conditions of the contract.